TRADOC

Initial Capabilities Document (ICD) Writer's Guide

Version 1.3

28 August 2009

The proponent for this administrative guide is the ARCIC Operations, Plans and Policy Division, Army Capabilities Integration Center (ATFC-O), TRADOC. This guide is one of a series of web-based publications available at https://www.us.army.mil/suite/kc/5232873 and the ARCIC Portal at https://cac.arcicportal.army.mil/ext/jcids/default.aspx. Users are encouraged to send comments using MS Word Track Changes approved by a COL or equivalent to Monr.arcicgatekeeper@us.army.mil. Updates will be uploaded as changes become necessary.

Summary of Changes

Version 1.3

- Paragraph 2.c revised, changed from "Timeframe under consideration" to "Identify the timeframe under consideration for initial operational capability (IOC) based on input from the combatant commands and the acquisition community. Supports revision in the JCIDS manual revised 31 Jul 09.
- Appendix B – References. Date of publication for the JCIDS manual changed from March 2009 to 31 Jul 09 (date update released/published).

ICD Instructions and Template

1. **ICD Template**. Use the template below for preparation of an ICD. After opening, save the file and name it for the capability you are developing. *Do not delete any of the bookmarks in the template that allow the table of contents to be updated*.

ICD Template (28 Aug 09).doc

2. **Considerations.**

a. **Resource Informed.** Adequate resources must be available to execute Materiel Solution Analysis (MSA) Phase objectives envisioned in the ICD and further refined in the Analysis of Alternatives (AoA) study guidance that will be developed once the ICD is approved. An ICD does not initiate a new acquisition program and resources required for MSA are generally limited. Be prepared to discuss resource trades within your capability portfolio and leverage the AROC Process Review Board (APRB) through the ARCIC Gatekeeper to get a feel for resourcing.

b. **Considering and Conducting Trades Background.**

(1) The Army is operating in an environment where we cannot afford, nor is it necessary to obtain every capability desired to fully mitigate every gap. Capability developers must accept that some incremental increases in warfighting capability are not always necessary since the gap may be within an acceptable level of risk. Because of these realities, capability developers must make risk assessments and trades in capability at every step of the capabilities development and acquisition process, from the CBA to production. Often times the capability developer will not even realize the decisions they make are actually trades. The main reason trades are considered is to ensure proposals are resource informed to achieve optimal warfighting capabilities, and integrated DOTMLPF and/or system performance attributes (outcomes) within relevant constraints and with acceptable operational risk.

(2) The most difficult thing for the capability developer to do is to understand all the things they should consider when making effective trades (refer to the ICD Trades Considerations Checklist for examples of some of those considerations). Trades should be evaluated across the DOTMLPF domains to determine the tactical, operational, and strategic impacts of any trades in a holistic fashion. The effect of a change in one domain on another domain must be considered as well as the second and third order effects on other domains, other interdependent systems, and other warfighting organizations, both Army and Joint. Review the information from the most current Capabilities Needs Analysis (e.g., the prioritized Capability Gaps and trades information in particular) for this portion of the ICD. Trades also provide a means in which we can propose alternative paths to close or mitigate gaps. Those trades must be analytically based, analytically

sound and risk informed. Additionally, they must consider the integration of joint and other service capabilities. The magnitude of effort required to accomplish beneficial and sound trades must not be minimized.

(3) Overarching trades considerations include; Organizational Impacts, Functional Impacts, Operational Risk (Internal – that is, Army dependence on its own Service capabilities; External – that is, Joint Integration and dependence on external (Joint, Intergovernmental, Interagency and Multinational) capabilities), Level of Integrated Capability, Resource Availability (dollars, personnel, etc.), Technical Feasibility (technical readiness), Performance, Cost, and Schedule.

(4) ICD Trades Considerations Checklist. This checklist is not intended to be a step by step guide for developing and documenting trades, there are too many variables to adequately cover all possible situations. The purpose of this checklist is to provide capability developers an illustrative list of things they should consider during the JCIDS process.

ICD Trades Considerations Check

3. **ICD Format**. The ICD format described below and in the attached template is mandatory for all Army-developed ICDs. Annotations for each paragraph and entry describe the information that it must contain, the source of that information, and how that information is developed in analyses. The information in this guide complies with instructions provided by Office of the Secretary of Defense (OSD), Chairman of the Joint Chiefs of Staff (CJCS), and Headquarters, Department of the Army (HQDA).

a. Each subparagraph should be numbered to facilitate requirements correlation, traceability, and ease of identifying issues during staffing. Use conventional alpha-numeric numbering of paragraphs. **The use of scientific numbering is unacceptable**.

b. ICDs must be submitted in MS-Word (6.0 or greater) format. Use Times New Roman, 12 pitch font.

c. Architecture products shall be embedded into a MS-Word file for ease of review during the staffing process.

d. All ICDs must be clearly labeled with draft version number, date, and include any caveats regarding releasability, even if UNCLASSIFIED. The intent is to share ICDs with allies and industry whenever possible. Paragraphs that contain non-releasable information (allies or industry) will be indicated.

e. Draft documents must be submitted with continuous line numbers displayed.

f. Ideally, the body of the ICD should be no more than 7 pages long.

g. Do not use photos, symbols, or logos on the front page, as part of the title page, or other locations throughout the document.

h. There are 3 mandatory Appendices listed for all ICDs. *Ensure the appendix titles conform exactly as prescribed. Innovation is this area is not appropriate.*

(1) Appendix A. Integrated Architecture Products. See paragraph 7.c.(1) for additional information.

(2) Appendix B. References. See paragraph 7.c.(2) for additional information.

(3) Appendix C. Acronym List. See paragraph 7.c.(3) for additional information.

(4) Appendix D. Non-Materiel Approaches Analysis or CONOPS. This is optional to display of the DOTMLPF Analysis or it may also be used for the CONOPS if the ICD is not based on a JROC approved CONOPS.

4. **ICD Preparation**.

a. **Cover Page.** Determine the most likely JPD assignment for the ICD as the first step in preparing the cover page.

(1) **Validation Authority** – The Validation Authority is dependent upon the Joint Potential Designator (JPD) assigned by the Joint Staff Gatekeeper during staffing. For a description of each designation see CJCSI 3170.01G, *Joint Capabilities Integration and Development System* (this will be hyperlinked once published). Appropriate validation authority entries correspond to JPD entries below:

(a) JROC Interest - The JROC is the validation authority.

(b) JCB Interest – JCB is the validation authority

(c) Joint Integration – HQDA is the validation authority.

(d) Joint Information - HQDA is the validation authority.

(e) Independent - HQDA is the validation authority.

(2) **Approval Authority** – the approval authority for the ICD depends on JPD assigned. Fill in if known or leave blank until determined by the Joint Staff. For additional information on approval authority see CJCSI 3170.01G (this will be hyperlinked once published). Once the approval authority has been determined, insert one of the following in the space provided:

(a) JROC – for capabilities designated as JROC Interest.

(b) JCB – for capabilities designated as JCB Interest.

(c) HQDA – for capabilities that are not JROC or JCB Interest Programs.

(3) **Milestone Decision Authority (MDA).** The MDA is dependent upon the "potential ACAT" of an ICD. For additional information on MDA designation see DODI 5000.02, *Operation of the Defense Acquisition System*, Enclosure 3-ACAT & MDA.

(a) Potential ACAT I - The MDA is either the Defense Acquisition Executive (DAE) who is dual-hatted as the Under Secretary of Defense for Acquisition, Technology and Logistics (USD AT&L) or the Army Acquisition Executive (AAE), also referred to as the Assistant Secretary of the Army for Acquisition, Technology and Logistics (ASAALT).

(b) Potential ACAT II & III – Generally, MDA is delegated by the AAE to a managing Program Executive Officer (PEO). Select the appropriate PEO from the list below:

- PEO Ammunition.
- PEO Aviation.
- PEO Chemical and Biological Defense.
- PEO Combat Support & Combat Service Support.
- PEO Command Control and Communications (Tactical).
- PEO Enterprise Information Systems.
- PEO Ground Combat Systems.
- PEO Intelligence, Electronic Warfare and Sensors.
- PEO Missiles and Space.
- PEO Simulation, Training, and Instrumentation.
- PEO Soldier.

(4) **Designation.** A designation is assigned by the J8 Gatekeeper to specify Joint Capabilities Integration and Development System (JCIDS) validation, approval and interoperability expectations. For a description of each designation see CJCSI 3170.01G, *Joint Capabilities Integration and Development System*, *https://www.intelink.gov/wiki/JCIDS*.

(a) "JROC Interest" designation will apply to all potential ACAT I/IA capabilities that have a potentially significant impact on interoperability in allied and coalition operations. These documents will receive all applicable certifications and are staffed through the JROC for validation and approval.

(b) "JCB Interest" designation will apply to all potential ACAT II and below programs where the capabilities associated with the document affect the joint force and an expanded joint review is required. These documents will receive all applicable certifications and are staffed through the JCB for validation and approval.

(c) "Joint Integration" designation will apply to potential ACAT II and below capabilities where the concepts with the document do not significantly affect the joint force and an expanded review is not required, but staffing is required for applicable certifications (Information Technology and National Security Systems interoperability, Intelligence).

(d) "Joint Information" designation applies to all potential ACAT II and below capabilities that have interest or potential impact across Services or agencies but do not reach the threshold for JROC/JCB Interest and do not require any certifications. *Not frequently used by J8 as an ICD designation.*

(e) "Independent." Not valid for an ICD. The ICD defines needed capabilities in operational, non system-specific terms that show clearly how and why the recommended approach(s) best provides the capabilities and attributes needed to execute approved warfighting concepts. The construct makes it applicable across the joint forces and not specific to a single DOD component.

(5) **Prepared for Materiel Development Decision**. *Unless there is another specified acquisition milestone identified, use this statement.*

(6) **Date**. Enter the date the ICD was signed out by the last Headquarters. *DO NOT PRECEED THE STATEMENT OF THE DATE WITH THE WORD "DATE" AS IT IS REDUNDANT. For the proponent, enter the date their Headquarters approved the ICD as the proponent position and approved forwarding to ARCIC for validation. Similarly, ARCIC will date the ICD with the date validated by the appropriate ARCIC Director.*

(7) **Draft Version Number**. Use draft version numbers to maintain good configuration management of the ICD. Each time the document undergoes a significant revision, the version number will be updated, i.e. 1.0, 1.1, 1.2.

(8) **Releasability Instructions.** An ICD is a conceptual document. Attempt to keep the ICD UNCLASSIFIED so it is releasable to the widest possible audience, to include the Defense Industry. The following releasability instruction is recommended for ICDs that contain no classified Information:

(a) "**Releasability:** Approved for public release; distribution unlimited."

(b) Other appropriate releasability instructions can be found in AR 380-5, *Department of the Army Information Security Program*, 29 Sep 00, page 28, paragraph 4-12.h Warning notices, available at: http://www.army.mil/usapa/epubs/pdf/r380_5.pdf.

b. **ICD Main Body.** Begin the ICD on the first page following the cover page information. ***Paragraph numbering is restarted to correlate with the ICD Template.***

1. **Concept of Operations Summary**. Describe the Concept, CONOPS, Unified Command Plan-assigned mission to which the capabilities in the ICD contribute, Army Operational Concepts (AOCs), Army Functional Concepts (AFCs), and Concept Capability Plans (CCPs) this capability contributes to, what operational outcomes it provides, what effects it must produce to achieve those outcomes, how it complements the integrated joint force, and what enabling capabilities are required to achieve its desired operational outcome. The structure of this paragraph can be adjusted to meet the needs of the ICD.

a. Describe the Concept, CONOPS, and/or Unified Command Plan (UCP) that the assigned mission to which the capabilities identified in this ICD contribute.

b. Describe operational outcomes the capabilities provide.

c. Describe effects the capabilities must produce to achieve those outcomes.

d. Describe the capabilities complement the integrated joint warfighting force.

e. Describe enabling capabilities are required to achieve the desired operational outcomes.

f. If the ICD is not based on a previously approved CONOPS, the CONOPS in its entirety will be included as an appendix. *If Appendix D is used for the DOTMLPF Analysis, then the CONOPS becomes Appendix E. If Appendix D is not used, then the CONOPS is included as Appendix D.*

2. Joint Capability Area (JCA).

a. List the applicable JCAs. (http://www.dtic.mil/futurejointwarfare/cap_areas.htm).

b. List the Range of Military Operations (ROMO).

c. Identify the timeframe under consideration for initial operational capability (IOC) based on input from the combatant commands and the acquisition community. (Change to JCIDS Manual, 31 Jul 09 update)

d. List the relevant Defense Planning Scenarios (DPS) that apply.

3. Required Capability.

a. Describe the required capabilities that were identified during the CBA.

b. Explain why the required capabilities are essential to the joint force commander to achieve military objectives.

c. Address the need for the capability to comply with applicable DOD, joint, national, and international policies and regulations.

d. List the JCAs to which the capabilities identified in this ICD contribute directly. List the associated Tier 1 & 2 JCAs that the capability you are developing contribute to directly. Limit the discussion to the 2 or 3 most critical JCAs.

e. Define the capabilities using the common lexicon for capabilities established in the JCAs. *The table should include only associated JCAs where the capability described "contributes to directly." The entire JCA table is included in the ICD template. Delete the "rows" that aren't applicable if neither Tier 1 or 2 are associated to the capability or delete specific Tier 2 JCAs that are not associated w/ the capability. See the Table below.*

Table 3.1 Associated JCAs

Tier 1	Tier 2
Force Application	- Engagement - Maneuver
Command & Control	- Organize - Understand - Planning - Decide - Direct - Monitor
Battlespace Awareness	- Intelligence, Surveillance, & Reconnaissance (ISR) - Environment
Net-Centric	- Information Transport - Enterprise Services - Net Management - Information Assurance
Protection	- Prevent - Mitigate
Logistics	- Deployment & Distribution - Supply - Maintain - Logistics Services - Operational Contract Support - Engineering
Building Partnerships	- Communicate - Shape
Force Support	- Force Management - Force Preparation - Installation Support - Human Capital Management - Health Readiness
Corporate Management & Support	- Advisory & Compliance - Strategy & Assessment - Information Management - Acquisition - Program, Budget, & Finance - Research & Development

f. Identify the relevant prioritized capability attributes as identified by the combatant commands through the Senior Warfighters' Forum (SWarF) process for battlespace awareness, command and control, logistics and net-centric capabilities. SWarF information is located at URL: http://www.intelink.sgov.gov/wiki/Portal:Senior_Warfighter_Forum_%28SWarF%29 on SIPRNET.

4. <u>Capability Gaps and Overlaps or Redundancies</u>. The FAA and FNA are the sources for paragraph four. *Use the table in the template. Cover the same Tier 1&2 JCAs that you discussed in paragraph 3.*

a. Describe, in operational terms, the missions, tasks, and functions that cannot be performed or are unacceptably limited or when and how they will become unacceptably limited. This

discussion should also provide the linkage between the required capabilities and appropriate joint/Army concepts (JOCs, JECs, AOCs, AFCs, and CCPs).

(1) Identify whether the capability gap is due to:

(a) Lack of proficiency in existing capability (cannot accomplish the mission to the level expected)

(b) Lack of sufficient capability (do not have enough of an effective capability)

(c) Capability does not exist, or

(d) Capability needs to be replaced.

(2) Identify those capabilities for which there exist overlaps or redundancies.

(3) Provide linkage between the required capabilities and the Concept, CONOPS, or UCP assigned mission.

b. Describe the attributes of the desired capabilities in terms of desired outcomes. Use broad descriptions to help ensure that the required capabilities are addressed without constraining the solution space to a specific, and possibly limited, materiel system. Where multiple characteristics are identified, they should be prioritized based on:

(1) The combatant command validated list of prioritized capability attributes.

(2) Their value to delivering the capability within the context of the CONOPS described earlier. For instance, if delivering cargo, which is more important: speed, range, cargo size, cargo weight, etc.?

c. Where multiple capability gaps are identified, a recommended prioritization of the gaps is required.

(1) This prioritization should be based on the potential operational risk associated with the gaps.

(2) This prioritization will help ensure critical operational shortfalls are addressed appropriately.

d. Provide a table that summarizes all capability gaps, relevant attributes, and associated metrics as shown below. (See the attached template)

(1) Where appropriate use the combatant command prioritized list of capability attributes and associated metrics.

(2) Indicate the minimum value below which the capability will no longer be effective.

(3) Indicate the priority of the capability gaps and which attributes are most important to the capability.

Note: This will be the basis for creating the linkages between the capabilities and the systems during the development of subsequent CDDs and CPDs.

Table X.X. Capability Gap Table (Example)

Priority	Tier 1 & Tier 2 JCAs	Description	Metrics	Minimum value
		Capability 1		
		Attribute 1	Description	Value
		Attribute n	Description	Value
		Capability 2		
		Attribute 1	Description	Value
		Attribute n	Description	Value
		Capability n		
		Attribute 1	Description	Value
		Attribute n	Description	Value

e. For those capabilities where overlaps or redundancies exist, assess whether the overlap is:

(1) operationally acceptable, or

(2) If excessive overmatch exists and the overlap should be evaluated as part of the tradeoffs to satisfy capability gaps.

f. Definitions of the identified capabilities should satisfy two rules:

(1) Rule 1. Capability definitions must contain the required operational attributes with appropriate qualitative parameters and metrics, e.g., outcomes, time, distance, effect (including scale), obstacles to be overcome, and supportability.

(2) Rule 2. Capability definitions should be general enough so as not to prejudice decisions in favor of a particular means of implementation but specific enough to evaluate alternative approaches to implement the capability.

Note: The discussion above should capture the results of the CBA described in Enclosure A.

5. Threat and Operational Environment.

a. Describe in general terms the operational environment, including joint operational environments, in which the capability must be exercised and the manner in which the capability

will be employed. Identify studies, organizations, and analytic agencies providing the content summarized in this paragraph.

b. Summarize the current and projected threat capabilities (lethal and non-lethal) to be countered by the required capability. (i.e., an anti-tank capability is intended to counter enemy heavily armored vehicles or lightly armored infantry fighting vehicles)

(1) Reference the current Defense Intelligence Agency (DIA)-validated threat documents and Service intelligence production center-approved products or data used to support the CBA.

(2) Contact the DIA Defense Warning Office, Acquisition Support Division for assistance:

(a) DSN: 283-0788.

(b) SIPRNET: http://www.dia/smil/mil/admin/di/dwo/dwo3.html.

(c) JWICS: http://www.dia.ic.gov/admin/di/dwo/dwo3.html.

(3) If the proposed capability does not counter a hostile system this should be clearly stated in this paragraph (i.e. "The XYZ capability is not intended to counter a specific threat system").

Note: reference para 5.b. above - Projected Threat Capabilities: Refer to current DIA validated threat documents and service intelligence production center approved products or data used to support the initial JCIDS analysis. TRADOC DCS, G-2 coordinates with DIA and intelligence production centers to ensure that operational environment and threat assessments are current and accurate.

6. Ideas for Non-Materiel Approaches (DOTMLPF Analysis). The purpose of this subparagraph is to capture your CBA results for non-materiel alternatives to close or mitigate the gap (s). Capture alternative approaches to providing capabilities that do not require developing new materiel. This should not be a sequential examination of changes to doctrine, then organization, then training, and so on, in isolation from one another. It should demonstrate an honest attempt to provide the needed capability by altering the mix of DOTMLPF factors. Although examined as a mix, summarize the DOTMLPF analysis in separate subparagraphs (i.e., one or more for each domain). If a non-materiel approach has potential, it should be summarized and included in the final recommendations (Paragraph 7). If non-materiel approaches are not adequate, describe why such non-materiel changes cannot close the gap to an acceptable level of risk. At a minimum, this analysis looks at using existing materiel (including that of allies and other services) in different ways, training soldiers to perform new or different functions, educating leaders to approach operational challenges differently, changing the way organizations and facilities are put together, and improving the capabilities of existing materiel systems through modification. Non-materiel solutions may be inadequate to close or mitigate a gap for any of several reasons: they don't provide the necessary capability; they impair another needed capability; they do not provide the needed force characteristics (e.g., don't solve problems of weight and bulk for deployability); or they provide only a temporary or partial solution.

a. Summarize the results of the analysis conducted to date.

b. Identify any changes in US or allied doctrine, operational concepts, tactics, organization, training, materiel, leadership and education, personnel, facilities, or policy that are considered in satisfying the deficiency in part or in whole.

c. If one or more non-materiel approaches to mitigate part or all of the capability gaps, they should be summarized and included in the recommendations.

7. Final Recommendations

a. Describe the non-materiel approaches recommended for implementation through a joint doctrine, organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF) change recommendation (DCR) or Army DOTmLPF Integrated Capabilities Recommendation (DICR).

b. Where the non-materiel changes were not sufficient to mitigate gaps, make a recommendation on the type of materiel approach preferred for each gap:

(1) Information system approach

(2) Evolutionary development of an existing capability, or

(3) Transformational approach.

c. Appendices.

(1) A - Integrated Architecture Products. The OV-1 is mandatory. Other views may be included as desired. Refer to CJCSI 62-12.01E, *Interoperability and Supportability of Information Technology and National Security*, table E-1, available at: http://www.dtic.mil/cjcs_directives/cdata/unlimit/6212_01.pdf, for requirements.

(2) B – References. The below 5 references represent the "minimum" set of references that should be listed in an ICD. This is not a laundry list. Any reference cited should be correlated to the capability you are discussing. You don't get extra credit for having 5 pages of references. All references should conform to AR 25-50, *Managing & Preparing Correspondence, para 1-31 References*, available at: http://www.apd.army.mil/jw2/xmldemo/r25_50/cover.asp. When listing publications, include: the number, title, and date of the publication.

(3) C – Acronym List. List all acronyms used in the ICD. Use only approved acronyms and spell them out the first time they appear in the ICD. Refer to Joint Publication 1 -02, *Department of Defense Dictionary of Military and Associated Terms*, as amended through 17 Oct 2008, (http://www.dtic.mil/doctrine/jel/new_pubs/jp1_02.pdf) for approved DOD acronyms and the U.S. Army Records Management and Declassification Agency, (available at: https://www.rmda.army.mil/abbreviation/MainMenu.asp) for approved Army acronyms.

(4) D – Non-Materiel Approaches Analysis or CONOPS. This is optional to display of the DOTMLPF Analysis or it may also be used for the CONOPS if the ICD is not based on a JROC approved CONOPS.